



## PATENT ABSTRACTS OF JAPAN

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TSUTOMU**(72) Inventor: **YONEYAMA TSUTOMU**(54) **DIELECTRIC LINE**

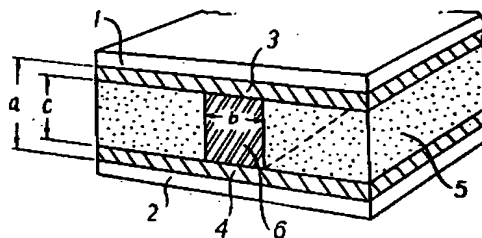
dielectric medium 5 in inequality 1.

(57) Abstract:

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**PURPOSE:** To decrease line loss, by inserting a dielectric layer satisfying a specific condition to a dielectric medium among each conductor flat plate, the dielectric medium and a dielectric strip for suppressing radiation due to bents and the discontinuity of the line.

**CONSTITUTION:** Two conductor plates 1, 2 are arranged in parallel, the dielectric strip 6 having a larger dielectric constant than that of a medium 5 is inserted to the dielectric medium 5 existing between the flat plates 1 and 2 and dielectric layers 3, 4 are sandwiched between the flat plates 1, 2 and the medium 5 and the strip 6 respectively. The dimensions of the dielectric layers 3, 4 are set to satisfy inequality 1, the electric field of electromagnetic waves is polarized in parallel with the flat plates 1, 2 for suppressing the radiation due to the bents and the discontinuity of the line, allowing to decrease the line loss, where  $\epsilon_{r1}$  is a specific dielectric constant to the dielectric medium 5, (a) is a distance between the flat plates 1 and 2, (c) is thickness of the dielectric medium 5 and  $\lambda_0$  is the wavelength of the electromagnetic waves in the



$$\tan\left(\frac{\pi c}{\lambda_0}\right) < \sqrt{\epsilon_{r1}} \cot\left(\sqrt{\epsilon_{r1}} \pi \frac{a-c}{\lambda_0}\right) \quad 1$$